

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Mark C. Duhon et al.

Serial No.: 09/871,240

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For: Expandable Elements

§ Group Art Unit: 3672

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§ Examiner: Jennifer Hawkins Gay

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§ Atty. Dkt. No.: 22.1397 (SHL.0102US)

Mail Stop Appeal Brief-Patents

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

APPEAL BRIEF PURSUANT TO 37 C.F.R § 41.37

Sir:

The final rejection of claims 2, 3, 5-11, 27-33, and 35-49 is hereby appealed.

I. REAL PARTY IN INTEREST

The real party in interest is Schlumberger Technology Corporation.

II. RELATED APPEALS AND INTERFERENCES

None.

III. STATUS OF THE CLAIMS

Claims 2, 3, 5-11, 24-33, and 35-49 (see Appendix of Claims) have been finally rejected and are the subject of this appeal.

Claim 34 has been allowed (see Appendix of Allowed Claims).

Date of Deposit:

August 8, 2005

I hereby certify under 37 CFR 1.8(a) that this correspondence is being deposited with the United States Postal Service as **first class mail** with sufficient postage on the date indicated above and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313.

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Claims 1, 4, and 12-26 have been cancelled.

IV. STATUS OF AMENDMENTS

No amendments have been submitted after final rejection.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The following provides a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number and to the drawings by reference characters, as required by 37 C.F.R. § 41.37(c)(1)(v). Each element of the claims is identified by a corresponding reference to the specification and drawings where applicable. Note that the citation to passages in the specification and drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element.

Independent claim 2 recites an apparatus for use in a wellbore, comprising:

an element (Fig. 1:14; Fig. 8:314) formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task (Specification, p. 4:16-18; p. 9:6-8); and

a component including a seal (Fig. 1:42; Fig. 8:304) engageable with the element (Specification, p. 6:1-20; p. 9:4-8, 20-23).

Independent claim 3 recites an apparatus for use in a wellbore, comprising:

an element (Fig. 8:312) formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task (Specification, p. 9:6-8); and

a component including an anchor (Fig. 8:302) actuatable by the element (Specification, p. 9:4-8, 20-23).

Independent claim 5 recites an apparatus for use in a wellbore, comprising:

an element (Fig. 10:502) formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task,

wherein the element includes a sand screen (Fig. 10:502; Specification, p. 11:22-30).

Independent claim 6 recites an apparatus for use in a wellbore, comprising:

an element formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task; and

a shock absorber (Fig. 12:702) including the element (Specification p. 12:25-13:11).

Independent claim 7 recites an apparatus for use in a wellbore, comprising:

an element formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task; and

a releasable connector mechanism (Fig. 13:800) including the element (Specification, p. 13:12-24).

Independent claim 8 recites an apparatus for use in a wellbore, comprising:

an element (Fig. 15:1002) formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task (Specification, p. 14:15-21); and

an explosive component (Fig. 15:1000) including the element (Specification, p. 14:15-21).

Independent claim 10 recites an apparatus for use in a wellbore, comprising:

an element formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task; and

a weak point connector (Fig. 16:1104) including the element (Specification, p. 14:22-p. 15:10).

Independent claim 11 recites an apparatus for use in a wellbore, comprising:

an element formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task; and

a heating device (Figs. 1:28, 5:210, 8:322, 9:406, 10:508, 11:612, 12:710, 13:810, 14:902, 15:1004, 16:1107) to heat the element to a temperature sufficient to cause the element to exhibit superplastic behavior (Specification, p. 5:23-p. 6:20; p. 8:17-23; p. 9:15-23; p. 11:2-7; p. 11:25-30; p. 12:16-24; p. 13:6-11; p. 14:8-14; p. 14:17-21; p. 15:5-10).

Independent claim 37 recites an apparatus for use in a wellbore, comprising:

an element formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task,

wherein the element is selected from the group consisting of a casing (Fig. 9:402), a liner (Fig. 9:402), a tubing (Specification, p. 11:9-11), and a pipe (Specification, p. 11:9-11); and

a heating device (Fig. 9:406) to heat the element to a temperature such that the element exhibits superplastic behavior (Specification, p. 11:1-16).

Independent claim 40 recites an apparatus for use in a wellbore, comprising:

an element (Fig. 5:212) formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task (Specification, p. 8:15-23); and

a fishing tool (Figs. 5-7: 202, 204, 206, 208, 210, 212, 220) for a downhole conduit structure (Figs. 5-7:200), the fishing tool comprising the element (Specification, p. 8:15-27).

Independent claim 42 recites an apparatus for use in wellbore, comprising:

an element (Fig. 11:602) formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task;

a junction seal assembly (Fig. 11:600) comprising the element (Specification, 12:5-15); and

a heating device (Fig. 11:612) to heat the element to a temperature such that the element exhibits superplasticity (Specification, p. 12:15-24).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- A. Indication of Rejection of Claims 29 and 37.**
- B. Claims 2, 3, 27, 28, 35, 36, and 44-49 Were Rejected Under 35 U.S.C. § 102 Over U.S. Patent No. 5,941,313 (Arizmendi).**
- C. Claim 5 Was Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 3,712,376 (Owen) in view of U.S. Patent No. 6,056,835 (Miyake).**
- D. Claim 6 Was Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 5,131,470 (Miszewski) in view of Miyake.**
- E. Claim 7 Was Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 4,122,899 (Brieger) In View of Miyake and Over U.S. Patent No. 6,454,001 (Thompson) in View of Miyake.**
- F. Claims 8 and 9 Were Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 4,042,019 (Henning) in View of Miyake.**
- G. Claims 10, 11, and 39 Were Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 4,081,031 (Mohaupt) in View of Miyake.**
- H. Claims 30-32 Were Rejected Under 35 U.S.C. § 103 Over Arizmendi in View of Mohaupt.**
- I. Claim 33 Was Rejected Under 35 U.S.C. § 103 Over Arizmendi in View of U.S. Patent No. 6,474,414 (Gonzalez).**
- J. Claim 38 Was Rejected Under 35 U.S.C. § 103 Over Owen in View of Miyake and Mohaupt.**
- K. Claims 40 and 41 Were Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 3,380,528 (Timmons) in View of U.S. Patent No. 3,713,486 (Meitzen) and Miyake.**
- L. Claims 42 and 43 Were Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 6,056,059 (Ohmer) in View of Mohaupt.**

VII. ARGUMENT

A. Indication of Rejection of Claims 29 and 37.

Even though the second page of the final Office Action dated April 13, 2005 indicated that claims 29 and 37 were rejected, no specific rejection of claim 29 or 37 over any prior art reference was asserted. Therefore, since claims 29 and 37 have not been finally rejected, allowance of claims 29 and 37 is respectfully requested.

B. Claims 2, 3, 27, 28, 35, 36, and 44-49 Were Rejected Under 35 U.S.C. § 102 Over U.S. Patent No. 5,941,313 (Arizmendi).

1. Claims 2, 3, 27, 28, 35, and 36.

Independent claim 2 was finally rejected as being anticipated by Arizmendi. Appellant respectfully disagrees with the assertion by the Examiner that Arizmendi discloses an apparatus comprising an element formed of a superplastic material. 4/13/2005 Office Action at 2. Arizmendi describes a sheath body 22 that is a relatively thin-walled tubular member formed from stainless steel, titanium, or other material having sufficient strength and elasticity to bend without fracturing. Arizmendi, 4:29-33. However, the fact that a sheath body is elastic to enable it to bend without fracturing does not make it superplastic. A material does not automatically become superplastic – the material has to be processed in a specific manner to achieve superplasticity. For example, as taught by Miyake, one of the references cited by the Examiner, there are several alternative techniques for making a material superplastic.¹ See Miyake, 1:13-64, 7:19-10:57. There is absolutely no teaching whatsoever within Arizmendi that special

¹ The specification of the present application also describes characteristics of a superplastic material. Specification, p. 3:23-4:15; 7:22-8:5).

processing is performed on the various materials for the sheath body 22 to make the material superplastic.

The Examiner responded to the above argument by asserting that “applicant does not claim a specific process by which a material can be made superplastic nor does the specification provide any basis for this argument.” 4/13/2005 Office Action at 11. It is true that claim 1 does not claim a process of making a material superplastic – however, that point does not change the fact that Arizmendi still fails to disclose a *superplastic* material. The titanium or other material of Arizmendi identified by the Office Action is *not* a superplastic material. Arizmendi does not teach that the stainless steel, titanium, or other material is superplastic. In fact, Arizmendi provides absolutely no indication that the stainless steel, titanium, or other material exhibits any characteristics that would indicate superplasticity.

To support the rejection, the Examiner pointed to the teachings of the specification on page 3, starting at line 28, that lists various materials that can constitute a superplastic material. However, the Examiner appears to have ignored the further teaching in the specification of the present application on page 7, starting at line 20 through page 8, line 5, that teaches the process by which a conventional material is converted into a superplastic material. Therefore, since Arizmendi teaches the use of titanium, stainless steel, or other material in their normal state, Arizmendi does not disclose an element formed of a superplastic material to perform a predetermined downhole task, in combination with a component including a seal engageable with the element.

With respect to independent claim 3, Arizmendi also does not disclose the combination of an element formed of a *superplastic* material to perform a predetermined downhole task, and a component including an anchor actuatable by the element.

For the foregoing reasons, it is respectfully requested that the final rejection of the above claims be reversed.

2. Claims 44-49.

Claims 44-49 depend from independent claim 2 or 3, and thus are allowable for at least the same reasons as corresponding claims 2 and 3.

Moreover, with respect to dependent claims 44-49, some characteristics of a superplastic material are expressly recited to further distinguish the teachings of Arizmendi. There clearly is absolutely no teaching in Arizmendi that any of its materials exhibit the characteristics expressly recited in claims 44-49. The Examiner stated that the recited features of claims 44-49 are inherent properties of the materials listed in Arizmendi. 4/13/2005 Office Action at 2-3. “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is *necessarily* present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.’” M.P.E.P. § 2112 (8th ed., Rev. 2), at 2100-54. The materials described in Arizmendi do not *necessarily* have to have the characteristics recited in claims 44-49. The titanium, stainless steel, or other material listed in Arizmendi would *not* have the recited characteristics if special processing were not performed to make the materials superplastic. Therefore, the titanium, stainless steel, or other materials taught in Arizmendi do not necessarily have superplastic characteristics. The rejection based on inherency is therefore improper.

The final rejection of the above claims should be reversed for these additional reasons.

C. Claim 5 Was Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 3,712,376 (Owen) in view of U.S. Patent No. 6,056,835 (Miyake).

1. Claim 5.

Independent claim 5 was rejected as being obvious over Owen and Miyake. A *prima facie* case of obviousness of independent claim 5 has not been established over Owen and Miyake for at least the reason that no motivation or suggestion existed to combine the teachings of Owen and Miyake. M.P.E.P. § 2143 (8th ed., Rev. 2), at 2100-129. Although Owen describes a liner that can be used as a sand screen, Owen makes no mention whatsoever of using a superplastic material in its sand screen (a point conceded by the Examiner; see 4/13/2003 Office Action at 3). Miyake describes a superplastic material, but there is no suggestion anywhere within Miyake of using its superplastic material to form an element that is part of a sand screen. The Examiner did not cite to any other knowledge that would have been possessed by persons of ordinary skill in the art to provide the necessary motivation or suggestion to combine the reference teachings.

The Examiner stated that it would have been obvious to have modified Owen to be made from a superplastic material as taught by Miyake “in order to have formed the element from the material that was capable of being subjected to expanding without failure (1:5-10).” 4/13/2005 Office Action at 3. Further, the Office Action stated that “[o]ne would have been motivated to make such a combination because an element that was more versatile and less prone to failure would have been obtained, as taught by Miyake et al. (36:1-20).” *Id.* The problem with using the above stated motivations to modify Owen based on Miyake is that neither Owen nor Miyake suggests these motivations. The Examiner has also failed to cite to any specific knowledge of a person of ordinary skill in the art that would have supplied the above stated motivations. The benefits of using a superplastic material in a sand screen is suggested in only the disclosure of

the present invention. By relying upon the disclosure of the present invention to find benefits that are then used as the motivation to combine prior art reference teachings, the Examiner has engaged in the use of impermissible hindsight to piece together un-related elements of prior art references. *See In re Fritch*, 972 F.2d 1260, 1266, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992) (holding that “one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.”). In other words, the objective evidence establish that there was no suggestion or motivation to modify Owen based on Miyake.

It is well established law that “[t]he mere fact that the prior art could be so modified would not have made the modification **obvious** unless the prior art suggested the **desirability** of the modification.” *In re Gordon*, 733 F.2d 900, 902, 221 U.S.P.Q. 1125 (Fed. Cir. 1984) (emphasis added). As the Federal Circuit has stated, “virtually all [inventions] are combinations of old elements.” *In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453 (Fed. Cir. 1998). “Most, if not all, inventions are combinations and mostly of old elements.” *Id.*

Therefore an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be ‘an illogical and inappropriate process by which to determine patentability.’

Id.

Owen provides no suggestion whatsoever of any desirability to modify its liner to incorporate a superplastic material. Miyake provides no suggestion whatsoever that its superplastic material can form an element that is part of a sand screen.

As another apparent basis for the obviousness rejection, the Examiner argued that “the sand screen of Owen is described as being formed of aluminum, which has been, defined a

superplastic material.” 4/13/2005 Office Action at 13-14. This statement is factually incorrect, and is in fact inconsistent with the earlier statement on page 3 of the Office Action where the Examiner conceded that Owen does not disclose a sand screen formed from a superplastic material. As taught by Miyake itself, as well as by the specification of the present application, aluminum in its normal state is not a superplastic material, unless special processing is performed. The statement that aluminum is “defined” as a superplastic material is without support. It is unclear where such a definition that aluminum must be a superplastic material appears. Miyake does not provide such a definition.

Also, there clearly is no definition provided anywhere in the specification of the present application that *any* aluminum constitutes superplastic material. In fact, as specifically taught by the specification, special processing has to be performed to achieve a material having superplastic characteristics. This teaching of the specification is consistent with the teaching of Miyake itself. Thus, it is clear that the aluminum of Owen does not have superplastic characteristics. Therefore, it is clear that no motivation or suggestion existed to modify the liner of Owen to incorporate the superplastic material of Miyake.

A person of ordinary skill in the art would not have been motivated to combine the teachings of Owen and Miyake to achieve the claimed invention based on the teachings of Owen and Miyake. A *prima facie* case of obviousness has therefore not been established with respect to claim 5.

For the foregoing reasons, the final rejection of claim 5 should be reversed.

D. Claim 6 Was Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 5,131,470 (Miszewski) in view of Miyake.

1. Claim 6.

Independent claim 6 was rejected as being obvious over Miszewski in view of Miyake. Claim 6 recites an apparatus for use in the wellbore that comprises an element formed of a superplastic material to perform a predetermined downhole task, and a shock absorber that includes such an element. The Examiner cited to the shock absorber disclosed in Miszewski, which includes damping coils made of aluminum or stainless steel. 4/13/2005 Office Action at 4. There is no teaching or suggestion that the aluminum damping coils in the shock absorber of Miszewski have a superplastic material. The Examiner cited Miyake as teaching the modification of the aluminum damping coils of the shock absorber in Miszewski into superplastic damping coils.

However, there did not exist any motivation or suggestion to combine the teachings of Miszewski and Miyake. There is no indication whatsoever in Miszewski that its shock absorber would benefit from including an element formed of a superplastic material. Miszewski does teach that its shock absorber has damping coils made of aluminum. However, aluminum is not a superplastic material unless it is specially processed to become a superplastic material. The reading of any aluminum as being a superplastic material is clearly erroneous. Miyake also does not teach that any aluminum is a superplastic material. Miyake teaches that aluminum has to be specially processed to become a superplastic material. However, except for the teachings of the disclosure of the present invention, there was no other teaching or suggestion of any desirability to incorporate a superplastic material into the shock absorber of Miszewski. In view of the foregoing, it is respectfully submitted that a *prima facie* case of obviousness has not been established with respect to claim 6.

Reversal of the final rejection of claim 6 is respectfully requested.

E. Claim 7 Was Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 4,122,899 (Brieger) In View of Miyake and Over U.S. Patent No. 6,454,001 (Thompson) in View of Miyake.

1. Claim 7.

Independent claim 7 was rejected as being obvious over either Brieger in view of Miyake or Thompson in view of Miyake. The obviousness rejections of independent claim 7 over Brieger and Miyake and over Thompson and Miyake are defective. Although Brieger describes a shear pin, Brieger makes no mention whatsoever of using a superplastic material in its shear pin. Similarly, although Thompson describes a shear sub, Thompson makes no mention whatsoever of using a superplastic material in its shear sub. Miyake describes a superplastic material, but there is absolutely no suggestion anywhere within Miyake of using its superplastic material to form an element that is part of a releasable connector mechanism. The Examiner does not cite to any other knowledge that would have been possessed by persons of ordinary skill in the art to provide the necessary motivation or suggestion to combine the reference teachings. The Examiner cited to the fact that Brieger discloses that its shear pin can be made of aluminum, and thus, that would be suggestive of a superplastic material. That is clearly not the case, as the presence of aluminum does not automatically suggest a superplastic material. The same rationale applies to Thompson. Therefore, a *prima facie* case of obviousness has not been established against claim 7 over either Brieger and Miyake or Thompson and Miyake.

The final rejection of claim 7 should therefore be reversed.

F. Claims 8 and 9 Were Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 4,042,019 (Henning) in View of Miyake.

1. Claims 8 and 9.

Independent claim 8 was rejected over the combination of Henning and Miyake. Similar rationale was provided by the Examiner to reject claim 8 over Henning and Miyake. The Examiner stated that Henning discloses an element formed of aluminum, and thus, that would be the suggestion needed to combine Henning and Miyake to achieve the claimed combination of an explosive component including a superplastic element. 4/13/2005 Office Action at 5-6. As discussed above, such rationale is clearly erroneous. No motivation existed to combine the teachings of Henning and Miyake, since Henning does not suggest the desirability of incorporating an element formed of a superplastic material into Henning's explosive component, and Miyake does not suggest the desirability of using Miyake's superplastic materials in an explosive component. A *prima facie* case of obviousness has thus not been established with respect to claim 8 (or its dependent claim 9).

G. Claims 10, 11, and 39 Were Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 4,081,031 (Mohaupt) in View of Miyake.

1. Claim 10.

Independent claim 10 was rejected as being obvious over Mohaupt in view of Miyake. Claim 10 recites a weak point connector including an element formed of a superplastic material. The rationale for combining Mohaupt with Miyake is based on the fact that Mohaupt discloses a housing 24 that is formed from aluminum. As explained above, this basis for combining a reference with Miyake is clearly erroneous. A *prima facie* case of obviousness has thus not been established with respect to claim 10.

Therefore, the final rejection of claim 10 should be reversed.

2. Claims 11 and 39.

Claim 11 was also rejected as being obvious over Mohaupt and Miyake. Claim 11 recites an element formed of a superplastic material in combination with a heating device to heat the element to a temperature sufficient to cause the element to exhibit superplastic behavior. To support the obviousness rejection, the Examiner referred to the housing 24 formed of aluminum as disclosed in Mohaupt, stating that this aluminum is a superplastic material as taught by Miyake. 4/13/2005 Office Action at 6. It is respectfully submitted that no motivation or suggestion existed to combine the teachings of Mohaupt and Miyake, as it is clear that the housing 24 of Mohaupt, formed of aluminum, is *not* made of a superplastic material. There existed no suggestion of any desirability to incorporate a superplastic material into the housing 24 of Mohaupt, and Miyake does not disclose any suggestion of any desirability to use the superplastic material disclosed in Miyake in the arrangement of Mohaupt. Therefore, there would have been no need for a heating device to heat an element to a temperature sufficient to cause the element to exhibit superplastic behavior, as recited in claim 11. Since no motivation or suggestion existed to combine the teachings of Mohaupt with Miyake to achieve the claimed invention, the *prima facie* case of obviousness against claim 11 (and its dependent claim 39) is defective.

H. Claims 30-32 Were Rejected Under 35 U.S.C. § 103 Over Arizmendi in View of Mohaupt.

1. Claims 30-32.

Claim 30 depends from claim 2 and is thus allowable for at least the same reasons as claim 2.

Claim 30 was rejected as being obvious over Arizmendi and Mohaupt. The Examiner conceded that Arizmendi does not disclose a heating device to heat the superplastic material to a temperature such that the element exhibits superplastic behavior. 4/13/2005 Office Action at 7. However, the Examiner relied upon Mohaupt as teaching the heating device. *Id.* It is respectfully submitted that even if Arizmendi and Mohaupt can be combined, the hypothetical combination of Arizmendi and Mohaupt would not teach or suggest all elements of claim 30. Specifically, neither Arizmendi nor Mohaupt teaches or suggests a heating device to heat a superplastic material to a temperature such that the element exhibits superplastic behavior. Arizmendi has absolutely no need for such a heating device, because its sheath body 22 is not formed of a superplastic material and does not need to be heated to a temperature such that the sheath body 22 exhibits superplastic behavior. Mohaupt teaches the use of a chemical generator mixture 28 that is combusted to form a flame that traverses the walls of a housing 24, which can be made from aluminum tubing or a rigid, plastic or elastomeric material. The flame is designed to burst a rigid material, cause failure of the thinnest section of a plastic material, or to cause swelling of an elastomeric material to cause fluids in the wellbore surrounding the system to be rapidly displaced outwardly through perforations in a well casing. Mohaupt, 4:1-19. There is absolute no basis to construe the chemical generator mixture 28 as a heating device to heat a superplastic material to a temperature such that the element exhibits superplastic behavior. The Mohaupt heat generator causes bursting, failure or swelling of a housing to cause rapid displacement of surrounding fluid. That teaching clearly does not provide any suggestion of heating a superplastic material such that it exhibits superplastic behavior. Therefore, the hypothetical combination of Arizmendi and Mohaupt, even if proper, fails to teach or suggest the subject matter of claim 30.

Moreover, there simply did not exist any motivation or suggestion to combine the teachings of Arizmendi and Mohaupt to achieve the claimed invention. As noted above, there simply did not exist any need whatsoever in Arizmendi of heating the sheath body 22 for the sheath body 22 to exhibit plastic behavior. Also, there is no reason to incorporate the teachings of Mohaupt that relate to bursting, swelling, or failing of a housing to displace fluids into the seal mechanism described in Arizmendi. For the foregoing reasons, a *prima facie* case of obviousness has not been established with respect to claim 30.

Therefore, the final rejection of claim 30 (and its dependent claims 31 and 32) should be reversed.

I. Claim 33 Was Rejected Under 35 U.S.C. § 103 Over Arizmendi in View of U.S. Patent No. 6,474,414 (Gonzalez).

1. Claim 33.

Claim 33 depends from claim 2 and is allowable for at least the same reasons as claim 2.

Claim 33 was rejected as being obvious over Arizmendi and Gonzalez. It is respectfully submitted that the hypothetical combination of Arizmendi and Gonzalez does not teach or suggest all elements of claim 33. Specifically, neither Arizmendi nor Gonzalez teaches an element (formed of a superplastic material) that comprises a plug to block fluid flow in a bore of the conduit. As conceded by the Examiner, Arizmendi does not disclose such an element that comprises the plug. 4/13/2005 Office Action at 8. Gonzalez also fails to disclose or suggest such an element, as Gonzalez teaches a molten metal plug that expands upon solidification to form a pressure-resistant seal in a tubular. In other words, the seal of Gonzalez is formed by *melting* a metal, with the seal formed after solidification of the molten metal. This is clearly different from an element formed of a *superplastic material* that comprises a plug to block fluid

flow. Thus, as the hypothetical combination of Arizmendi and Gonzalez fails to teach or suggest all elements of claim 33, it is respectfully submitted that a *prima facie* case of obviousness has not been established with respect to claim 33.

Therefore, the final rejection of claim 33 should be reversed.

J. Claim 38 Was Rejected Under 35 U.S.C. § 103 Over Owen in View of Miyake and Mohaupt.

1. Claim 38.

Claim 38 depends from claim 5 and is thus allowable for at least the same reasons as claim 5.

Claim 38 was rejected as being obvious over Owen, Miyake, and Mohaupt. In view of the fact that the obviousness rejection of claim 5 over Owen and Miyake is defective, it is respectfully submitted that the rejection of claim 38 over Owen, Miyake, and Mohaupt is also defective.

Therefore, reversal of the final rejection of claim 38 is respectfully requested.

K. Claims 40 and 41 Were Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 3,380,528 (Timmons) in View of U.S. Patent No. 3,713,486 (Meitzen) and Miyake.

1. Claims 40 and 41.

Independent claim 40 was rejected as being obvious over Timmons, Meitzen, and Miyake. The rationale underlying the rejection of claim 40 over Timmons, Meitzen, and Miyake is that Timmons discloses a fishing tool with an expandable element, Meitzen discloses anchoring devices with slips that include aluminum, which provided the hook to bring Miyake into the combination. The use of aluminum as the motivation to incorporate the teachings of

Miyake into Timmons and Meitzen is clearly erroneous. A *prima facie* case of obviousness has thus not been established with respect to claim 40 (or its dependent claim 41).

Therefore, the final rejection of the above claims should be reversed.

L. Claims 42 and 43 Were Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 6,056,059 (Ohmer) in View of Mohaupt.

1. Claims 42 and 43.


Independent claim 42 was rejected as being obvious over Ohmer in view of Mohaupt. It is respectfully submitted that no motivation or suggestion existed to combine the teachings of Ohmer and Mohaupt. Ohmer teaches the use of a post-forming tool deployed into a branching sub to extend outlet members of the branching sub outwardly. The forming tool applies pressure to perform the deformation of the branching sub outlets. There is absolutely no indication of any desirability to incorporate the heating device of Mohaupt into the Ohmer system for the purpose of heating an element formed of a superplastic material to a temperature such that the element exhibits superplasticity. Therefore, no motivation existed to combine the teachings of Ohmer and Mohaupt. A *prima facie* case of obviousness has not been established against claim 42 (or its dependent claim 43).

VIII. CONCLUSION

In view of the foregoing, reversal of all final rejections and allowance of all pending claims is respectfully requested.

Respectfully submitted,

Date: Aug. 8, 2005



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APPENDIX OF CLAIMS

The claims on appeal are:

- 1 2. An apparatus for use in a wellbore, comprising:
2 an element formed of a superplastic material to perform a predetermined
3 downhole task; and
4 a component including a seal engageable with the element.

- 1 3. An apparatus for use in a wellbore, comprising:
2 an element formed of a superplastic material to perform a predetermined
3 downhole task; and
4 a component including an anchor actuatable by the element.

- 1 5. An apparatus for use in a wellbore, comprising:
2 an element formed of a superplastic material to perform a predetermined
3 downhole task,
4 wherein the element includes a sand screen.

- 1 6. An apparatus for use in a wellbore, comprising:
2 an element formed of a superplastic material to perform a predetermined
3 downhole task; and
4 a shock absorber including the element.

- 1 7. An apparatus for use in a wellbore, comprising:
2 an element formed of a superplastic material to perform a predetermined
3 downhole task; and
4 a releasable connector mechanism including the element.

- 1 8. An apparatus for use in a wellbore, comprising:
2 an element formed of a superplastic material to perform a predetermined
3 downhole task; and
4 an explosive component including the element.
- 1 9. The apparatus of claim 8, wherein the explosive component includes a shaped
2 charge.
- 1 10. An apparatus for use in a wellbore, comprising:
2 an element formed of a superplastic material to perform a predetermined
3 downhole task; and
4 a weak point connector including the element.
- 1 11. An apparatus for use in a wellbore, comprising:
2 an element formed of a superplastic material to perform a predetermined
3 downhole task; and
4 a heating device to heat the element to a temperature sufficient to cause the
5 element to exhibit superplastic behavior.
- 1 27. The apparatus of claim 2, wherein the element is adapted to translate the seal into
2 engagement with a downhole structure.
- 1 28. The apparatus of claim 27, comprising a packer.
- 1 29. The apparatus of claim 27, comprising a patch.
- 1 30. The apparatus of claim 27, further comprising a heating device to heat the
2 superplastic material to a temperature such that the element exhibits superplastic behavior.
- 1 31. (Previously Presented) The apparatus of claim 30, further comprising a piston
2 adapted to cause translation of the element.

1 32. The apparatus of claim 30, wherein the heating device comprises a propellant.

1 33. The apparatus of claim 2, further comprising a conduit, wherein the element
2 comprises a plug to block fluid flow in a bore of the conduit.

1 35. The apparatus of claim 3, wherein the component comprises a packer including
2 the anchor.

1 36. The apparatus of claim 35, wherein the packer further comprises a seal,
2 wherein the element comprises one or more sleeves attached to the anchor and the
3 seal, the one or more sleeves adapted to translate the anchor and seal into engagement with a
4 downhole structure.

1 37. An apparatus for use in a wellbore, comprising:
2 an element formed of a superplastic material to perform a predetermined
3 downhole task,
4 wherein the element is selected from the group consisting of a casing, a liner, a
5 tubing, and a pipe; and
6 a heating device to heat the element to a temperature such that the element
7 exhibits superplastic behavior.

1 38. The apparatus of claim 5, further comprising a heating device to heat the sand
2 screen to a temperature such that the sand screen exhibits superplastic behavior.

1 39. The apparatus of claim 11, wherein the heating device comprises a propellant.

1 40. An apparatus for use in a wellbore, comprising:
2 an element formed of a superplastic material to perform a predetermined
3 downhole task; and
4 a fishing tool for a downhole conduit structure, the fishing tool comprising the
5 element.

1 41. The apparatus of claim 40, wherein the element is adapted to expand to engage an
2 inner well of the conduit structure.

1 42. An apparatus for use in a wellbore, comprising:
2 an element formed of a superplastic material to perform a predetermined
3 downhole task;
4 a junction seal assembly comprising the element; and
5 a heating device to heat the element to a temperature such that the element
6 exhibits superplasticity.

1 43. The apparatus of claim 42, wherein the element comprises one of a tubing and
2 pipe to be inserted into a lateral wellbore.

1 44. The apparatus of claim 2, wherein the superplastic material exhibits elongation to
2 failure in excess of 200%.

1 45. The apparatus of claim 2, wherein the superplastic material has a fine equi-axed
2 grain structure that remains stable during deformation.

1 46. The apparatus of claim 45, wherein a grain size of the fine equi-axed grain
2 structure is in a range of 2 to 10 micrometers.

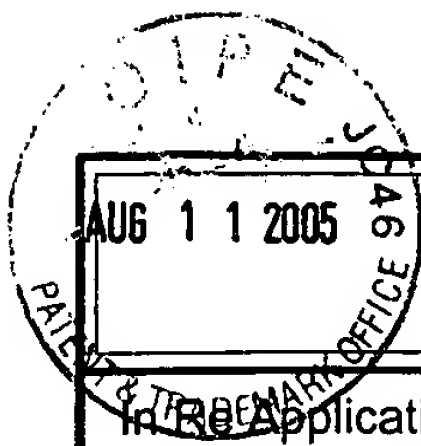
1 47. The apparatus of claim 3, wherein the superplastic material exhibits elongation to
2 failure in excess of 200%.

1 48. The apparatus of claim 3, wherein the superplastic material has a fine equi-axed
2 grain structure that remains stable during formation.

1 49. The apparatus of claim 48, wherein a grain size of the fine equi-axed grain
2 structure is in a range of 2 to 10 micrometers.

APPENDIX OF ALLOWED CLAIMS

- 1 34. An apparatus for use in a wellbore, comprising:
2 an element formed of a superplastic material to perform a predetermined
3 downhole task;
4 a component including a seal engageable with the element;
5 a conduit, wherein the element comprises a plug to block fluid flow in a bore of
6 the conduit; and
7 a port to communicate fluid pressure to deform the plug inwardly to enable
8 movement of the plug.



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TRANSMITTAL OF APPEAL BRIEF (Large Entity)	Docket No. SHL.0102US-
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In Re Application Of: **Mark C. Duhon et al.**

Application No. 09/871,240	Filing Date 05-30-2001	Examiner Jennifer Hawkins Gay	Customer No. 35204	Group Art Unit 3672	Confirmation No. 8266
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Invention: **Expandable Elements**

COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on

The fee for filing this Appeal Brief is: **\$500.00**

- ☒ A check in the amount of the fee is enclosed.
- ☐ The Director has already been authorized to charge fees in this application to a Deposit Account.
- ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **20-1504 (SHL.0102US)**
- ☐ Payment by credit card. Form PTO-2038 is attached.

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Signature

Dated: **August 8, 2005**

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